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PATENT SPECIFICATION

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DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

A Filter for a Cigarette

We, THE NATIONAL CASH REGISTER COMPANY of Dayton in the State of Ohio, and Baltimore in the State of Maryland, United States of America, a corporation organized under the laws of the State of Maryland, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a filter for cigarettes, either as a filter tip forming part of the integral structure of the cigarette, or as part of a cigarette holder, and is directed to means operable by the smoker to convert the normal cigarette smoke emanating from the burning tobacco to an aromatic smoke by enforcing contact of the smoke with aromatic liquids.

Thus, according to the invention, there is provided a filter for a cigarette, said filter comprising a deformable cylindrical tube containing a plurality of minute, pressure-rupturable capsules each retaining a liquid aromatic substance, the arrangement being such that, when pressure is exerted on said tube, the capsules are ruptured releasing the aromatic substance.

The object of this invention is to give the smoker a choice or election as to the smoke content as between no aromatic effect or a selected aromatic effect as to degree and timing. The amount of pressure with respect to time is one mode of selection. The pressure can be exerted in increasing increments at desired time intervals during the consumption of the cigarette, or initiated at the end of the smoking period.

The filter includes a tube portion which may be constructed as a continuation of the tube holding the tobacco, or adapted to be attached as a continuation thereof. The tube has packed between two longitudinally spaced wads of porous material, e.g., cellulosic fibres, a crushable composition comprising minute capsules containing an aromatic liquid.

The size of the capsules ranges preferably

from approximately 10 microns in diameter to approximately 1500 microns in diameter, and may be mixed as to size, or even mixed as to content. Capsules spaced in the filter of a cigarette which exceed 1500 microns in diameter tend to occlude the passage of smoke through the filter.

The capsule walls can be made of a gelatin-gum arabic complex, gelatin-carrageenan complexes, phased out succinylated gelatins, ethyl cellulose, or other material. Any standard method of encapsulation such as the one set forth in the following example I may be used to form the capsules.

There may be packed with the capsules small particles which may be inert or provide additional filtering action, such as activated charcoal. Two disparate encapsulated substances which act synergistically when the capsules containing them are ruptured can be included. The relative proportions of solid particles to capsules may vary according to the effect desired.

The capsules preferably should contain an oily, aromatic liquid comprising about 90%, by weight, of the encapsulated structure. The oily liquid is released by the rupturing of the capsule wall material. The oily liquid may be a mixture of oils or dispersions of solids in oils. The aggregation of capsules can contain disparate substances within each discrete capsule. While menthol is the preferred odoriferous substance encapsulated in the rigid, rupturable, seamless capsule, such substances as oil of peppermint, cola, caffeine, oil of anise, coca, oil of cloves, perfume, and asafoetids can be included as the odoriferous substance. Such materials as sulfuric acid, sodium hydroxide, and certain amines which selectively leach out substances in tobacco smoke deleterious to the health of the smoker can be included. Chlorophyll and listerine can be included to prevent unpleasant mouth odors. Hydrogen peroxide can be included to whiten or bleach the teeth of the smoker.

The preferred embodiment is shown in Fig.

1, wherein 10 is a cigarette tube of paper or other inflammable material, 11 is the tobacco content, 12 is a first wad of filter material, 13 is the second wad of filter material, and 14 is the pack including the rupturable oil-containing capsules mixed with about 50% of charcoal granules of about the same average size. The oil preferably is a saturated solution of menthol in a relatively non-volatile fraction of paraffin oil.

The following example illustrates an encapsulation procedure.

On hundred and eighty millilitres of a high quality, acid-extracted, pigskin gelatin (285—305 Bloom strength, isoelectric point pH 8—9) and one hundred and eighty millilitres of an 11% solution of gum arabic were mixed with five hundred sixty millilitres of water at approximately 35 to 40 degree Centigrade in a 1500-millilitre beaker.

No adjustment of pH was made. The preparation was agitated by means of a turbine blade and a baffle. Two hundred and twenty-six grams of menthol was introduced at 35 degrees Centigrade to make droplets exhibiting internal diameter of 1000 to 1500 microns.

With continuous agitation, the preparation was allowed to cool slowly to 25 degrees Centigrade. The preparation was then chilled in an ice bath, and ten millilitres of a 25% solution of glutaraldehyde was added. The system was agitated for sixteen hours. The capsules were

washed twice with water and then stirred fifteen minutes in a solution of 2.5 millilitres of trimethyl tallow ammonium chloride in 500 millilitres of water. Twenty millilitres of hydrogenated tallow amine acetate was added and the agitation continued for one hour. The capsules were vacuum filtered and subsequently dried.

WHAT WE CLAIM IS:—

1. A filter for a cigarette, said filter comprising a deformable cylindrical tube containing a plurality of minute, pressure-rupturable capsules each retaining a liquid aromatic substance, the arrangement being such that, when pressure is exerted on said tube, the capsules are ruptured releasing the aromatic substance.

2. A filter according to Claim 1, wherein the capsules are held in the tube between two wads of porous material spaced longitudinally within the tube.

3. A filter according to Claim 2, wherein the capsules are intermixed with a plurality of activated charcoal granules.

4. A filter-tipped cigarette having a tip formed by the filter claimed in any one of the preceding claims.

5. A filter-tipped cigarette substantially as hereinbefore described with reference to the attached drawings.

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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

